

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) TSM03-0140	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____ Signature _____ Typed or printed name _____		Application Number 10/619,828	Filed July 15, 2003
First Named Inventor Sheu, et al.		Examiner Farahani, Dana	
Art Unit 2891		Examiner Farahani, Dana	
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96) <input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>41,990</u> <input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____ </div> <div style="width: 45%; text-align: right;"> <u>/Thomas J. Meaney/</u> Signature <u>Thomas J. Meaney</u> Typed or printed name <u>972-732-1001</u> Telephone number <u>September 28, 2007</u> Date </div> </div> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p>			
<input checked="" type="checkbox"/> *Total of <u>1</u> form is submitted.			

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Sheu, *et al.* Docket No.: TSM03-0140
Serial No.: 10/619,828 Art Unit: 2891
Filed: July 15, 2003 Examiner: Farahani, Dana
For: Self-Aligned MOSFET having an Oxide Region below the Channel

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

The following Pre-Appeal Brief is submitted for review by a Panel of Examiners (“the Panel”). Claims 1-12 stand rejected under both 35 U.S.C. § 102(c) and § 103(a), as assertedly being unpatentable over U.S. Patent Application Publication 2002/0074598A1 to Doyle, et al., (hereinafter “*Doyle*”) and combinations of *Doyle* and U.S. Patent No. 4,069,904 to Shaw, et al., (hereinafter “*Shaw*”) and *Doyle* and U.S. Patent No. 6,759,717 to Sagarwala, et al., (hereinafter “*Sagarwala*”). Independent claim 1 is the subject of this pre-appeal request as it pertains to the teachings of *Doyle*. Applicants reserve the right to further argue other claims in an appeal brief.

1. Issue

The issue in this request for review is whether *Doyle* discloses “an impurity region within the channel region ...”, as required by claim 1, and as asserted by the Examiner in the Final Office Action, dated May 17, 2007, and the Advisory Action, dated August 28, 2007.

2. Discussion

In the Examiner’s comments from the Advisory Action, she notes that (1) *Doyle*’s usage of the term “oxidized voids” and other “un-cited” statements in *Doyle* indicate that the voids include at least a portion of an oxide – thus, an impurity region within the channel region; and (2) *Doyle* provides that “oxygen may be implanted” after formation of the device on the substrate, so that even if the oxide impurity is temporary, there is an intermediate form of the device that still reads on the claims.

A. Oxidized Voids

Doyle describes the “oxidized voids” at paragraphs [0036] and [0044] using the same terminology for both. While the Examiner finds that *Doyle*’s use describes that some kind of oxide is formed within or around the voids, Applicant asserts that the context used in *Doyle* supports that the term oxidized void describes the manner in which the voids are formed. *Doyle* states that oxygen ions may “be used in reaction to alter the internal region of the substrate by way of specific volume or thermal expansion differences (e.g., oxidized voids).” ¶s [0036] & [0044]. Annealing takes place later which causes the voids to actually form in the substrate. ¶ [0038]. Applicant asserts that oxidized void is a term used to describe the manner in which the voids were formed, and not the make-up of the voids, as asserted by the Examiner. An oxidized void is a void that is formed through the oxidation process.

While the Examiner claims that other language from *Doyle* supports her conclusion, there is, in fact, no other language that would tend to support that an oxidized void would include some kind of oxidized substance. *Doyle* states that the annealing process begins repairing the substrate material, but that these voids then form as a result. There is no disclosure in *Doyle* that indicates any oxidized material remains related to the oxidized voids or surrounding area. Thus, there is no disclosure in *Doyle* that supports the Examiner’s contention. As such, a void, whether an oxidized void or otherwise, is not the same as the impurity region required by claim 1. Therefore, claim 1 is patentable over the teachings in *Doyle*.

B. Intermediate Device

The Examiner also asserts that *Doyle* describes an intermediate product that reads on claim 1, stating that “Doyle states in [0036] that **oxygen** may be implanted after formation of the device on the substrate” such that even if the impurity is temporary, it still constitutes an intermediate product that reads on the claims. Advisory Action, continuation sheet. (emphasis added.) I would note that *Doyle* does **not** state that oxygen is implanted after formation of the device. The direct language from *Doyle* reads, “The **voids** of the present invention may be implanted into the substrate before, during, or after the formation of a device on the substrate.” ¶ [0036] (emphasis added). The Examiner’s mistaken quotation of *Doyle* elicits a misleading conclusion regarding any post-formation operations.

Only one of the examples discussed in *Doyle* describes a process occurring *after* device formation. Figures 13-16 show voids being created in the gate of an NMOS device. However, claim 1 requires the impurity region to be in the channel region, which the gate region is not. Therefore, there is no teaching in *Doyle* that describes any impurity region within the channel in a post-formation process, which would constitute the “intermediate” device asserted by the Examiner. Without any teaching of this alleged intermediate device, the Examiner’s reasoning is unsupported by *Doyle*’s disclosure.

Moreover, there is no disclosure in *Doyle* that indicates where any impurities may be implanted. The specification and Figures from *Doyle* indicate some depths to which the impurities may be implanted, but only show where the voids result. They do not show where the initial substances are implanted. *Doyle* describes that the implanted gases diffuse through the substrate, but there is no indication as to the exact location of the implantation. Thus, *Doyle* also does not show that the implant region is “spaced from the top surface” or “having a first outer boundary that is proximate, but laterally spaced apart from the source region and a second outer boundary proximate, but laterally spaced apart from the drain region.” The void depicted in Figure 17 appears to be located in the correct position. However, as discussed above, a void is not an impurity region.

Based on the foregoing, Applicant respectfully requests the Panel to reverse the Examiner’s rejections of claims 1-12.

Respectfully submitted,

September 28, 2007
Date

/Thomas J. Meaney/
Thomas J. Meaney
Attorney for Applicants
Reg. No. 41,990

SLATER & MATSIL, L.L.P.
17950 Preston Rd., Suite 1000
Dallas, Texas 75252
Tel.: 972-732-1001
Fax: 972-732-9218